



3 NUTRITION SERVICES

Effective: 12/1/95

3.11 Nutrition Risk Determination: Hematological Procedures

Revised: 05/16/05

POLICY: Hematocrit (Hct) or hemoglobin (Hgb) tests are required as stated in the Procedures. Proper testing equipment and methods must be used.

PROCEDURE:

A. TESTING REQUIREMENTS

1. Infants
 - a) Infants certified at <6 months of age: Do not test. Instead, they must be tested at 9 - <13 months of age, or at 6 - <9 months as stated in part b).
 - b) Infants certified at 6 - <9 months of age: Do not test except on a case-by-case basis (e.g., to test preterm and low birthweight infants fed low iron formula). Instead, they must be tested at 9 - <13 months of age.
 - c) Infants certified at 9 - <13 months of age: A Hct or Hgb test is required, unless the infant was tested at 6 - <9 months as allowed in part b).
2. Children: A Hct/Hgb test is required at every certification except for those 27 months of age or more if the test result was normal at the last certification. In these cases, tests must be done at least once every 12 months. If no other risk factor is identified during the certification process, a Hct/Hgb test is required.
3. Pregnant Women: A Hct/Hgb test is required. If referral data is used, the test must have been done during pregnancy.
4. Postpartum breastfeeding and nonbreastfeeding women:
 - a) Certification at <4 weeks postpartum: Do not test. Schedule a test (or to obtain referral data from a test performed after termination of the pregnancy) at 4 weeks to <90 days postpartum. If the value is low, update risk factors and priority level and provide appropriate counseling and referrals at that time. If the woman is late and comes in at ≥90 days, test. There are no sanctions if the woman does not come in for testing.
 - b) Certification of nonbreastfeeding women at 4 weeks to <6 months postpartum: Test. If referral data from an earlier test is used, the test must have been done at/after 4 weeks postpartum.



- c) Certification of breastfeeding women at 4 weeks to <12 months postpartum:
Test.

B. COORDINATION WITH BLOOD LEAD TESTING

Since WIC requires blood tests for anemia, and since in Wisconsin WIC Projects do most of the blood tests, concurrently doing a blood draw for lead testing is an excellent way to improve services to clients. Blood lead testing recommendations are:

1. Test between 9-15 months of age and again at 21-27 months of age. If a child is on a different recertification schedule, it is acceptable to test at, e.g., 16 and 28 months of age. The goal is 2 tests by 3 years of age.
2. When a child reaches their third birthday:
 - a) If the child has had 1 test, do a second.
 - b) If the child has had 2 tests, do not do any more.
 - c) If the child has had 0 tests, do one and do not schedule any more.
3. Coordinate the provision of this service with local health departments and local HMOs.

C. TESTING REQUIREMENT EXCEPTIONS

1. There are two exceptions for the requirement for blood tests specified earlier in these procedures:
 - a) An applicant's religious beliefs will not allow blood drawing. Include a statement of the applicant's refusal in their file, and do not use anemia as a risk factor.
 - b) An applicant has a medical condition in which the procedure could cause harm to the applicant (e.g., hemophilia or a serious skin disease). Include the physician's documentation of the medical condition in the participant's file. If the condition is considered treatable, a new statement is required for each certification. If possible, obtain referral data. Do not use an anemia risk factor if no Hct or Hgb result is available.
2. If on a case-by-case basis it is determined that the health and safety of WIC clinic personnel is severely at risk (e.g., a person with a contagious disease is hostile and physically abusive), consider other means to obtain the bloodwork results, e.g., refer the applicant to another location for the blood test (as long as there is no cost).



D. TESTING PROCEDURE

The following procedures are for testing using HemoCues.

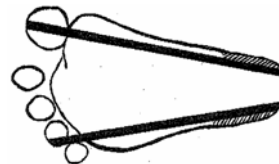
1. Prepare the work area. Disinfect the work surface and assemble all needed materials.
2. Assure the proper equipment is available:
 - a) HemoCue, microcuvettes (kept in vial until needed).
 - b) Materials for tests:
 - (1) Isopropyl alcohol, denatured, 70% (individually wrapped to minimize evaporation)
 - (2) bandaids
 - (3) gauze squares or pads or cotton balls
 - (4) automatically retractable lancets (pediatric platforms may be used for young children)
 - (5) disposable nonsterile gloves that fit (hypoallergenic, i.e., latex-free, must be supplied as requested by staff)
 - (6) (optional) eye protection (e.g., glasses, safety glasses), protective clothing (e.g., lab coat)
 - (7) small disposable scoops or sponges (for cleaning up broken microcuvettes)
 - (8) red labeled biohazard container for sharps
 - (9) labeled biohazard bag for other items that are contaminated with blood that is pourable, drippable, or flakable
 - (10) heavyweight, trash bag for bandaids and gauze used to wipe off first drop(s) of blood
 - (11) bleach mixed at a 1:10 dilution prepared daily or other disinfectant such as Lysol
 - (12) paper towels
 - (13) soap and running water OR waterless, alcohol-based, emollient-containing hand washing product if hand washing facilities are inaccessible
3. Do a finger or heel puncture (heel puncture is recommended for infants). Ask caregiver which they prefer.
 - a) Put on gloves. It is recommended to remove rings before gloving since frequent hand washing may lead to inadequate drying under rings, thus causing rashes.



- b) Finger Sampling. Note: If doing a blood draw for lead testing, see the "Recommended Procedure for the Collection of Blood Lead Specimens by Fingerstick" by the State Laboratory of Hygiene (contact the BPH Lead Poisoning Prevention Program if a copy is needed).
- (1) For finger sampling, stimulate blood flow: 1) have the participant hold his or her hand down and make a fist several times; 2) use your thumb in a gentle rocking movement to lightly press the client's finger from the top knuckle to the tip; or 3) run warm water over cold hands.
 - (2) Find a comfortable and safe way to hold the participant's hand. One method is palm to palm, with a firm grasp of the entire hand. With preschool children, use the parent's help (e.g., hold the child still, hold the child's forearm, or have the child sit on the parent's lap with the parent's arms around the child's arms). Hold the finger (or foot) lower than the participant's heart (to improve blood flow by use of gravity).
 - (3) Select the third or fourth finger. Cleanse skin with a 70% alcohol swab and air dry or dry thoroughly with gauze or cotton ball before making the puncture.
 - (4) Firmly hold the participant's finger with the index finger at first joint crease and thumb on the participant's fingernail. Make a puncture deep enough on the palmar surface (not the side or tip) so the blood will flow freely in the fleshy area to the side of the fingertip.
 - (5) Wipe away the first 3 drops of blood with a dry gauze square or pad or cotton ball. If the puncture does not bleed freely, cover the puncture with gauze and turn the hand away from you. Gently apply pressure to the finger, release, apply pressure again, and release. Do not squeeze the finger or "milk" it (pushing the blood forward toward the puncture). These actions force tissue fluid into the sample, resulting in an incorrect low reading.
 - (6) Dispose of gauze in trashbag, or in biohazard bag if blood is drippable. Dispose of lancet in sharp's container, taking care to avoid puncturing yourself.
- c) Heel sampling. The State Laboratory of Hygiene recommends doing heel sampling on infants (< 1 year of age) to prevent possible nerve damage to finger and to reduce the risk of the infant swallowing the bandaid.



- (1) The shaded area on either side of the heel on this picture indicate the testing sites. The puncture must not be through a previous puncture site which may be infected or at the curvature of the heel.



- (2) Cleanse skin with a 70% alcohol swab and air dry or dry thoroughly with gauze or cotton ball before making the puncture.
- (3) Make a puncture deep enough so the blood will flow freely.
- (4) Wipe away the first 3 drops of blood with a dry gauze square or pad or cotton ball.
- (5) Dispose of gauze in trashbag, or in biohazard bag if blood is drippable. Dispose of lancet in sharp's container, taking care to avoid puncturing yourself.

4. Collect the blood:

- a) Remove a cuvette from the vial. Secure the container lid so remaining microcuvettes do not spoil.
- b) Make sure that the drop of blood is sufficient to fill the whole cuvette. Holding the cuvette by the winged rear end, move the top of the cuvette into the center of the blood drop. The cuvette should now be totally filled in one step by a single drop of blood. Insufficient filling will result in low readings. No air bubbles should be visible in the optical eye of the cuvette. Smaller air bubbles along the side do not affect the result. If a cuvette is not completely filled on the first attempt, do not try to "top off" the cuvette since the blood will no longer react with the reagent in that cuvette; instead, fill a second cuvette. Wipe blood off of both sides and the back of the microcuvette "like butter from a knife." Avoid touching opened end of the microcuvette to prevent drawing blood back out of the capillary chamber.
- d) If necessary to stop bleeding, apply bandaid or have client hold dry gauze pad or cotton ball over the puncture.

5. Determine the result:

- a) A filled cuvette must be measured in the photometer within 10 minutes of filling. The filled cuvette should be kept in a horizontal position. Check the



cuvette before placing it in the photometer. After several minutes the blood in a filled cuvette will begin to dry. If pinprick size air bubbles are present, a new blood sample is needed.

- b) Put the filled cuvette in the holder - blood sample to the left and winged end up and to the right. Push holder into the photometer. Pull up slightly on end of holder and gently slide holder into photometer. After approximately 45 seconds, the hemoglobin value will appear on the display screen. It will remain for 5 minutes or until the cuvette is removed. Enter the hemoglobin value in DAISy.
- c) Dispose of tubes or microcuvette in sharp's container.
- d) If there is a blood spill, clean it up with the bleach solution or other disinfectant. Wipe again with bleach/disinfectant; let stand for 10 minutes. Wipe once more and let air dry. Collect all contaminated soft waste and discard in heavyweight trash bag.
- e) Remove gloves (after each person) and discard in trash bag; do not reuse gloves. If gloves are contaminated with blood, turn the gloves inside out while taking them off. If the blood contamination is drippable, discard gloves in the biohazard bag. Clean hands.
- f) Clean up the work area at the end of the day. Clean work surfaces with a disinfectant.

NOTES:

Audiovisual resource to assist with technique:

- * Videotape in the Health Screener Orientation Manual (distributed to Projects in 1997).

References:

- USDA Policy Memorandum: MWSSNP 1-2: Leg 3-1/NE 1 (General): Final Rule on Bloodwork Requirements, December 22, 1999.
- Bureau of Occupational Health, Wisconsin Division of Health: New OSHA bloodborne pathogen directive, 2000.
- Centers for Disease Control and Prevention: Recommendations to Prevent and Control Iron Deficiency in the United States. MMWR April 3, 1998. Vol. 47, No. RR-3.
- Procedures for the Collection of Diagnostic Blood Specimens by Skin Puncture, ed 3. NCCLS Document H4-A3, Vol. 11, No. 11, July 1991.
- Wisconsin State Laboratory of Hygiene: Recommended Procedure for the Collection of Blood Lead Specimens by Fingerstick. November, 1995.



- Wisconsin Childhood Lead Poisoning Prevention Program, Bureau of Public Health, Wisconsin Division of Health: A Wisconsin Physician's Guide to Blood Lead Screening and Treatment of Lead Poisoning in Children (in press as of August, 1998).
- Centers for Disease Control: Recommendations for prevention of HIV transmission in health care settings. MMWR 1987;36(suppl. no. 25).
- Centers for Disease Control: Update: Universal precautions for prevention of transmission of Human Immunodeficiency Virus, Hepatitis B Virus, and other bloodborne pathogens in health-care settings. MMWR 1988;37.
- Solid and Hazardous Waste Management Bureau, Wisconsin Department of Natural Resources: Guidelines for the Handling and Treatment of Medical/Infectious Waste. May, 1989.
- Rutala WA, Odette RL, Samsa GP: Management of infectious waste by IJS hospitals. J Am Med Assoc 1989;262(12):1635-1640.
- HemoCue Instruction Manual.
- USDA Policy Memorandum No. 92-15, 1992: Bloodwork Protocols.
- USDA Policy Memorandum 94-12, 1994: Bloodwork Requirements for Children and the Allowability of Additional Blood Tests During Certification Periods.